

## COASTAL CONSERVANCY

Staff Recommendation  
October 21, 2010

### SAN FRANCISCO BAY ECOSYSTEMS CLIMATE ADAPTATION ASSESSMENT

File No. 10-027-01  
Project Manager: Matthew Gerhart

**RECOMMENDED ACTION:** Authorization to accept \$357,000 from the Gordon and Betty Moore Foundation; authorization to disburse up to this amount plus an additional \$300,000 to further the Bay Area Ecosystems Climate Change Consortium's development of climate change research priorities, adaptation practices and pilot projects in the San Francisco Bay Area; and authorization to disburse up to \$150,000 of the total amount to Point Reyes Bird Observatory to coordinate the science review, technical support and mapping efforts of the Consortium.

**LOCATION:** All nine San Francisco Bay Area counties (San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, Solano, Napa, Sonoma, Marin), the San Francisco Estuary, and the ocean to the Greater Gulf of the Farallones (Exhibit 1).

**PROGRAM CATEGORY:** San Francisco Bay Area Conservancy

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#### **EXHIBITS**

Exhibit 1: [Map of the San Francisco Bay Area](#)

Exhibit 2: [BAECCC Draft Goals and Objectives](#)

Exhibit 3: [Project Letters](#)

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#### **RESOLUTION AND FINDINGS:**

Staff recommends that the State Coastal Conservancy adopt the following resolution pursuant to Sections 31000 *et seq.* of the Public Resources Code:

"The State Coastal Conservancy ("Conservancy") hereby authorizes acceptance of three hundred fifty seven thousand dollars (\$357,000) from the Gordon and Betty Moore Foundation, and disbursement of up to this amount plus an additional three hundred thousand dollars (\$300,000) to further the development by the Bay Area Ecosystems Climate Change Consortium ("Consortium") of climate change research priorities, adaptation practices and pilot projects. The Conservancy further authorizes disbursement of up to one hundred fifty thousand dollars (\$150,000) of this total amount to Point Reyes Bird Observatory ("PRBO") to coordinate the

science review, technical support and mapping efforts of the Consortium. Prior to the disbursement of any Conservancy funds to PRBO:

1. PRBO shall submit for the review and written approval of the Executive Officer a detailed work program, budget and schedule; and the names and qualifications of any contractors and subcontractors that it intends to employ, and
2. The Conservancy shall have received adequate matching funds from the Gordon and Betty Moore Foundation to support PRBO's work on the project."

Staff further recommends that the Conservancy adopt the following findings:

"Based on the accompanying staff report and attached exhibits, the State Coastal Conservancy hereby finds that:

1. The proposed project is consistent with the current Project Selection Criteria and Guidelines.
2. The proposed authorization is consistent with Chapter 4.5 of Division 21 of the Public Resources Code, regarding the resource and recreation goals of the San Francisco Bay Area, including the protection, restoration and enhancement of natural habitats and connecting corridors, scenic areas, and other open space resources of regional importance, and the ocean and bay.
3. PRBO is a nonprofit organization existing under Section 501(c)(3) of the United States Internal Revenue Code, and whose purposes are consistent with Division 21 of the California Public Resources Code."

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### **PROJECT SUMMARY:**

Staff requests authorization to disburse up to \$657,000 to further the Bay Area Ecosystems Climate Change Consortium's ("BAECCC's") development of climate change research priorities, adaptation practices and pilot projects, including the completion of a technical climate change update to the *Baylands Ecosystem Habitat Goals* ("Baylands Goals") report. Of this dollar amount, three hundred fifty seven thousand dollars (\$357,000) would originate in a grant from the Gordon and Betty Moore Foundation to the Conservancy for use in this project. Up to one hundred fifty thousand (\$150,000) of the authorization will be granted to Point Reyes Bird Observatory ("PRBO") to direct the science support and mapping efforts of BAECCC. The remainder will be used to contract for professional services that further the Conservancy's and BAECCC's climate change adaptation objectives. Conservancy funds will be dedicated to the preparation of the Baylands Goals Technical Update, while Moore Foundation funds will be expended on coordination of BAECCC's research strategy, management recommendations and communication efforts, including PRBO technical assistance.

BAECCC is a collaborative, multi-jurisdictional organization formed in 2009 for the purpose of integrating resource managers, scientists and policy makers to jointly address the impacts of accelerating climate changes to Bay Area ecosystems, including its uplands, the estuary and the ocean. (See Exhibit 2 for a description of BAECCC members, goals and objectives). The Conservancy and PRBO are both key members of BAECCC. BAECCC is currently working to

secure natural ecological and economic benefits to society by reducing the negative impacts of climate change on the region's wildlife, habitats and ecosystem functions, while also enhancing the role of natural systems in mitigating those impacts. BAECCC has established the following ten-year outcomes:

1. Science-based adaptive management approaches have been identified, tested, implemented, and disseminated to reduce negative impacts of climate change and variability on upland, coastal and ocean ecosystems as well as human communities;
2. Natural resource management protocols, plans, policies, regulation and statutes are revised and developed to prioritize greatest ecological response to increasingly unpredictable climate and greater extremes than experienced in the past century; and
3. The San Francisco Bay uplands, ocean and estuarian ecological systems have an enhanced ability to respond to rapid climate change to sustain ecological services on which our coastal communities rely.

To date, BAECCC participants have been providing in-kind services to: convene and conduct meetings; develop its membership; formulate its mission, goals and objectives; establish a website; conduct outreach; and to seek funding to undertake projects. BAECCC is now poised to direct significantly more resources toward implementing the particular set of two-year objectives described below. Members have pledged matching funds toward contracting for technical assistance, the National Oceanic and Atmospheric Administration has awarded BAECCC a \$300,000 grant for technical studies, and the Gordon and Betty Moore Foundation is considering, and is currently expected by Conservancy staff to approve in early November, a \$357,000 grant proposal for coordination and science support.

Under this authorization, the Conservancy would contract for professional services to work with BAECCC members to guide and implement ecosystem adaptation for the region, and to meet BAECCC's two year objectives. These professional services will include technical and management tasks. PRBO, a BAECCC founding member, will coordinate the science review, technical support and mapping aspects of BAECCC's work. BAECCC's work will include the following key elements:

- 1) A "research strategic plan" that prioritizes the most important and urgent gaps in scientific research and monitoring needed for effective adaptation of Bay Area ecosystems to climate change;
- 2) A technical climate change update to the 1999 *Baylands Ecosystem Habitat Goals (Baylands Goals)* report;
- 3) A set of the most effective "best management practices" for ecosystem adaptation;
- 4) Development of Bay Area climate change science and resource management information and communication, including improvements to long-term monitoring and informatics capacity, and;
- 5) A case study documenting, evaluating and disseminating lessons learned from BAECCC's experiences as an example of a consortium linking science with resource management to guide and accelerate implementation of climate change adaptation.

The federal matching funds recently secured by BAECCC members will allow for the initiation of several pilot projects in the region. Specific pilot projects include developing predictions of

future sea-level rise and storm impacts on coastal resources to assist coastal resource managers in preparing action plans; predicting sea-level rise impacts on San Francisco Bay wetlands to prioritize conservation and restoration actions; and monitoring changes in ocean ecosystems to inform ocean managers and complete the Ocean Adaptation Plan for the Greater Gulf of the Farallones. These efforts will complement BAECCC's participation in climate change elements of the Bay Area Open Space Council's (BAOSC's) Upland Habitat Goals Project, proposed Conservation Lands Network, and Critical Linkages work. The Upland Habitat Goals project has been funded in part with Conservancy support and the Critical Linkages work is being considered for funding at this board meeting as part of a separate staff recommendation that would authorize a grant to the San Francisco Parks Trust.

The key focus of the Conservancy's funding contribution to the project will be the technical update to the 1999 San Francisco *Baylands Goals* report to incorporate an improved understanding of the processes affecting bay habitats resulting from climate change. Focused on wetlands at the Bay's edge, the *Baylands Goals* report has been the guiding document for wetlands restoration and enhancement around the Bay for the past decade, having contributed to the protection of 40,000 acres of baylands and having attracted significant funding for implementation of acquisition, protection, and restoration projects. With the impending and significant effects that climate change will have on the Bay's wetland ecosystems, there is an urgent need to incorporate an assessment of these predicted impacts and associated adaptation strategies in a Technical Update of the report.

To complete the *Baylands Goals* Technical Update within the two-year period of this project the Conservancy will assist BAECCC in developing a process that emphasizes up-front consensus from scientists and managers. The main goals of the Technical Update will be to:

- i. Identify upland sites that can accommodate wetland transgression upslope;
- ii. Identify management strategies for marshes to be more resilient (e.g., improve sedimentation dynamics);
- iii. Identify long-term science and management gaps needing resolution to implement recommendations; and
- iv. Develop recommendations for "living shorelines"- using habitats to reduce shoreline erosion.

Work will start with a review of existing wetland science and restoration projects in San Francisco Bay to understand ongoing efforts and compile the specific gaps needing attention in the Technical Update. This will be accomplished through a workshop to bring together those with critical knowledge and a working group to summarize the results. Key to understanding future wetland issues will be synthesizing existing sediment budget information and estimating the amount needed to sustain baylands, as well as incorporating recent advances in hydrological, sea-level rise, and carbon sequestration modeling.

The project will revisit the habitat restoration and protection goals produced in 1999 to reflect the acquisition and restoration work completed since, and after assessing feasible and realistic approaches to addressing climate change impacts and ecosystem function, will include revisions to these goals in order to continue to guide efforts to protect, restore, and manage Bay wetlands. As with the original *Baylands Goals* report, these revised habitat restoration and protection goals

will provide a set of common goals for all the agencies and organizations working to protect the Bay's wetlands for the next decade or more.

The full Technical Update will be distributed via the web with an Executive Summary printed for policy-makers. By integrating the revised assessments and goals developed for the Technical Update into the California Resources Agency's San Francisco Bay Adaptation Plan, currently being developed through the San Francisco Bay Conservation and Development Commission ("BCDC"), these results will guide broader efforts throughout the Bay Area in support of key wetland objectives.

BAECCC is a collaboration of public and non-profit research and land management agencies and organizations dedicated to providing regional leadership and expertise for addressing the rapid environmental change now facing the Bay Area. BAECCC members have broad experience in assessing climate change impacts at a regional scale; conducting scientific research and monitoring; developing predictive models to understand possible future changes and prioritize conservation actions; employing, testing, and improving adaptive management strategies; and conducting outreach to local and regional stakeholders, policymakers and the public. These organizations, in working with Conservancy staff, are therefore highly qualified to bring a comprehensive, proactive and science-based approach to the Bay Area conservation community's evolving response to climate change.

PRBO, a nonprofit organization established under Section 501(c)(3) of the U.S. Internal Revenue Code, is a leader in the incorporation of climate change science into habitat assessment and the development of adaptation strategies. As a founding and central member of BAECCC, PRBO works with Bay Area partners to promote sound incorporation of science and modeling results into natural resource management, and is highly suited to direct the scientific review, technical support and mapping aspects of BAECCC's work during the project. This project will allow PRBO to advance its goals of protecting the Bay Area's wildlife and ecosystems and ensuring that high quality science informs Bay Area resource managers' response to climate change.

**Project History:** The need for an estuary-wide habitat based plan to protect, enhance and restore wetlands was recommended in the San Francisco Estuary Project's 1993 Comprehensive Conservation and Management Plan (CCMP). At that time, there were major conflicts between state and federal agencies over how to protect, restore and manage the remaining wetlands. The Baylands Goals project began in 1995, and involved more than 100 participants representing local, state and federal agencies, academia and the private sector over four years. The project galvanized significant support for acquisition and restoration of former baylands, with a goal of adding 60,000 acres of tidal marsh to the 40,000 acres that existed in San Francisco Bay at the time the report was written in 1999.

Since the release of the *Baylands Goals* Report, approximately 40,000 acres of salt ponds and other diked lands around San Francisco Bay have been acquired by public resource agencies or conservation organizations and are at various stages of restoration planning or implementation. This includes the former salt ponds in the Napa-Sonoma Marshes, the South San Francisco Bay Salt Ponds, Hamilton Airfield and Bel Marin Keys Unit V, Cullinan Ranch, Skaggs Island, Bahia, Bair Island, and Sears Point, among others.

The significant progress made to restore the baylands is threatened by climate change and rising sea levels. The San Francisco Bay Area counties are home to approximately 75% of the State's

350,000 acres of wetlands. Projected sea level rise potentially will significantly alter a large portion of these. While additional risk analysis is being undertaken, a focused effort is needed to identify specific actions that can be taken to protect, manage, and restore wetlands to sustain their functions along with the rising sea level.

Over the past decade, the Bay Area has also emerged as one of the key centers nationally in the development of regional climate science, ecological management strategies, and adaptation policy. Since forming in 2009, BAECCC has worked to understand and begin coordinating the vast range of federal, state and local efforts developing around climate change adaptation. The Conservancy has also taken a lead in this regard, adopting climate change policies in 2009 recognizing the need to address vulnerabilities of projects to sea level rise and other effects of climate change such as habitat change, water quantity and quality shifts, and altered sediment supplies.

**PROJECT FINANCING:**

Coastal Conservancy	\$300,000
Gordon and Betty Moore Foundation	\$357,000
National Oceanic and Atmospheric Administration	\$300,000
National Park Service	\$108,000
United States Geological Survey	\$65,000
PRBO Conservation Science	<u>\$15,000</u>
<b>Total Project Cost</b>	<b>\$1,145,000</b>

The Conservancy's contribution for the proposed project, \$300,000, is expected to come from the Conservancy's FY08 appropriation of the "Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006" (Proposition 84). Public Resources Code section 75001, et seq. This funding source may be used for projects that protect and restore the natural habitat values of coastal waters and lands and are consistent with Chapter 4.5 (the San Francisco Bay Area Program) of the Conservancy's enabling legislation. Public Resources Code Section 75060(c). In addition, Proposition 84 funds may be used to finance planning necessary for the successful design, selection, and implementation of such projects. Public Resources Code Section 75072. This portion of the authorization is consistent with the funding source because the project will serve to protect the beaches, bays and coastal waters of the state for future generations by identifying, evaluating, and interpreting resource data and information relevant to the establishment of goals and guidance for the preservation of bayland habitat in the San Francisco Bay Area.

The project is also an appropriate funding priority under Public Resources Code section 75071(e) because it includes a significant commitment of matching funds. Of the total project funding, \$357,000 will come to the San Francisco Bay Area Conservancy Program from a grant from the Gordon and Betty Moore Foundation. BAECCC members including the San Francisco Bay Joint Venture, Bay Area Open Space Council, and U.S. Fish and Wildlife Service are pledging technical and staff matching assistance. Nearly \$500,000 in additional match funding is being provided through federal matching funds for BAECCC pilot projects and directly by BAECCC members.

**CONSISTENCY WITH CONSERVANCY'S ENABLING LEGISLATION:**

The Conservancy is authorized under Section 31111 of the Public Resources Code to fund and undertake plans and feasibility studies, and to award grants to nonprofit organizations for these purposes, in order to implement Division 21. Additionally, the Conservancy is authorized by Section 31104 to accept financial support from public and private sources, such as the Gordon and Betty Moore Foundation. The proposed grant to PRBO would assist the nonprofit organization and BAECCC as they analyze climate-related habitat and restoration needs for the San Francisco Bay Area to ensure that acquisition and enhancement projects are resilient to the future effects of climate change.

This project would be undertaken pursuant to Chapter 4.5 of the Conservancy's enabling legislation, Public Resources Code Sections 31160-31165, to address resource and recreational goals in the San Francisco Bay Area. Under Section 31162(b), the Conservancy may undertake projects and award grants to protect, restore, and enhance natural habitats and connecting corridors, watersheds, scenic areas, and other open-space resources of regional significance. The proposed authorization will assist the Conservancy and its project partners in meeting these goals by facilitating the identification of significant climate vulnerabilities, and appropriate updates to habitat conservation goals in the San Francisco Bay Area Conservancy Program area. Consistent with Section 31163(b), the Conservancy will be supporting public/private partnerships in the San Francisco Bay Area.

This project is appropriate for prioritization under the selection criteria set forth in Section 31163(c) in that: (1) it will inform the incorporation of climate change considerations into projects supported in adopted local and regional plans, (2) it is multijurisdictional, involving all nine Bay Area counties, (3) it can be implemented in a timely way because PRBO and BAECCC members are ready to begin work, (4) it provides potential benefits (and avoids impacts) that need to be quickly implemented, and (5) it includes matching funds from the Gordon and Betty Moore Foundation, as well as partnering federal agencies.

Finally, consistent with Section 31165, the Conservancy will be supporting activities that are compatible with the preservation, restoration and enhancement of ocean, coastal and bay resources in order to benefit the San Francisco Bay region.

**CONSISTENCY WITH CONSERVANCY'S  
STRATEGIC PLAN GOAL(S) & OBJECTIVE(S):**

Consistent with **Goal 9 Objective A** of the Conservancy's Strategic Plan, the proposed project will help maintain and update lists of high-priority areas for the Bay Area Program, including projects that protect and restore natural habitats and open-space lands of regional significance, through the incorporation of climate change considerations into bayland and coastal habitat conservation goals and restoration priorities.

**CONSISTENCY WITH CONSERVANCY'S  
PROJECT SELECTION CRITERIA & GUIDELINES:**

The proposed project is consistent with the Conservancy's Project Selection Criteria and Guidelines, last updated on June 4, 2009, in the following respects:

**Required Criteria**

1. **Promotion of the Conservancy's statutory programs and purposes:** See the "Consistency with Conservancy's Enabling Legislation" section above.
2. **Consistency with purposes of the funding source:** See the "Project Financing" section above.
3. **Support of the public:** This project is supported the membership of the BAECCC, a consortium of land conservation agencies and organizations (Exhibit 2).
4. **Location:** The proposed project area is the baylands of the nine-county San Francisco Bay Area, as well as adjoining coast and ocean encompassing the Gulf of the Farallones.
5. **Need:** Resource professionals from around the San Francisco Bay Area will donate their time to this project, but Conservancy staff direction and the scientific and technical direction of PRBO are needed to lead the effort in a timely and efficient way.
6. **Greater-than-local interest:** In creating the San Francisco Bay Area Conservancy Program, the legislature designated the San Francisco Bay Area as an area of statewide concern. The modeling, assessment and adaptation techniques being developed in the project, as well as the BAECCC collaboration itself, are intended to become models statewide if not nationally in the realm of climate change adaptation.
7. **Sea level rise vulnerability:** The project is designed to specifically assess the vulnerability of bay, ocean, and bayland ecosystems to sea-level rise, and incorporate those concerns into planning for future acquisition, restoration, and management.

**Additional Criteria**

8. **Urgency:** Climate change is already affecting the coastal and bay resources of the nine-county Bay Area, and effective management solutions and adaptation strategies are needed as soon as possible. This proposed project will help guide future land protection and restoration efforts.
9. **Resolution of more than one issue:** The project is specifically designed to assess multiple and simultaneous climate challenges to bay ecosystems and provide comprehensive adaptation strategies. The collaborative development undertaken in this project will provide capacity for addressing other climate-related concerns in the region, such as issues of habitat connectivity, water supply and quality, and terrestrial-marine linkages.
10. **Leverage:** See the "Project Financing" section above.
12. **Innovation:** BAECCC represents a unique and evolving strategy to collaborative multi-jurisdictional response to climate change.
13. **Readiness:** BAECCC has secured matching funds and is prepared to begin as soon as Conservancy funding is available.
14. **Realization of prior Conservancy goals:** See "Project History" above.



16. **Cooperation:** BAECCC represents a unique and evolving collaboration among state, federal and local organizations on how to confront the challenges of climate change through innovative, regional efforts.
17. **Vulnerability from climate change impacts other than sea level rise:** The project will assess multiple climate impacts beyond sea level rise, including changes in hydrology, sediment supply, and habitat viability.

**COMPLIANCE WITH CEQA:** As a planning activity for possible future actions that have not been approved, adopted, or funded, this project is exempt from California Environmental Quality Act (CEQA) review under 14 California Code of Regulations Section 15262. Similarly, the project is exempt from CEQA review under Section 15306, which exempts basic data collection, research, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource.